CLAIMS

1. (PREVIOUSLY PRESENTED) A computer implemented method for refining a location of a device comprising:

(a) determining an approximate location of a device;

(b) reading a rule base that comprises an ordered collection of rules;

(c) capturing an imprecise input, wherein the imprecise input is based on:

(i) a proximity to a particular user identified location;

(ii) a similarity between a current user's activity and a particular established activity profile; or

(iii) whether a current time is within a particular temporal range or tempotal profile;

(d) processing the imprecise input to determine a magnitude of participation of the input in the rules;

(e) applying the rules to the imprecise input based on the magnitude of participation to produce a logical product; and

(f) computing a refined location based on the logical product.

2. (ORIGINAL) The method of claim 1 further comprising:

gathering empirical data; and

progressively refining the rule base based on the empirical data.

3. (ORIGINAL) The method of claim 1 wherein the rule base provides a default rule.

4. (ORIGINAL) The method of claim 1 wherein the rule base is configured to reflect regional trends, social trends, or demographic trends.

5. (ORIGINAL) The method of claim 1 wherein one of the rules utilizes a logical product in an antecedent to determine a consequent.

6.-8. (CANCELED)

9. (ORIGINAL) The method of claim 1 wherein the imprecise input is spatio-temporal.

10. (ORIGINAL) The method of claim 1 wherein the magnitude of participation is within an interval [0,1].

11. (ORIGINAL) The method of claim 1 wherein a three-valued set is defined for each imprecise input, wherein the three-valued set comprises a truth value, a false value, and an uncertainty value.

12. (ORIGINAL) The method of claim 1 wherein the logical product of each rule comprises a value between 0 and 1.

13. (ORIGINAL) The method of claim 1 wherein the refined location is computed by:
selecting the rule with the highest logical product; and
using a consequent corresponding to the selected logical product as the refined location.

14. (ORIGINAL) The method of claim 1 wherein the refined location comprises a list of candidate locations.

15. (PREVIOUSLY PRESENTED) An apparatus for refining a location of a device comprising:

(a) a computer having a memory;

(b) an application executing on the computer, wherein the application is configured to determine an approximate location of a device;

(c) an inference engine executing on the computer, wherein the inference engine is configured to:

(i) read a rule base that comprises an ordered collection of rules;

(ii) capture an imprecise input, wherein the imprecise input is based on:

(1) a proximity to a particular user identified location;

(2) a similarity between a current user's activity and a particular established activity profile; or

(3) whether a current time is within a particular temporal range or temporal profile;

(iii) process membership functions stored in the memory of the computer, wherein the membership functions define a magnitude of participation of the input in the rules;

(iv) apply the rules to the imprecise input based on the magnitude of participation to produce a logical product; and

(v) compute a refined location based on the logical product.

16. (ORIGINAL) The apparatus of claim 15 wherein the application is further configured to:

gather empirical data; and

progressively refine the rule base based on the empirical data.

17. (ORIGINAL) The apparatus of claim 15 wherein the rule base provides a default rule.

18. (ORIGINAL) The apparatus of claim 15 wherein the rule base is configured to reflect regional trends, social trends, or demographic trends.

19. (ORIGINAL) The apparatus of claim 15 wherein one of the rules utilizes a logical product in an antecedent to determine a consequent.

20.-22 (CANCELED)

23. (ORIGINAL) The apparatus of claim 15 wherein the imprecise input is spatio-temporal.

24. (ORIGINAL) The apparatus of claim 15 wherein the magnitude of participation is within an interval [0,1].

25. (ORIGINAL) The apparatus of claim 15 wherein a membership function defines a three-valued set for each imprecise input, wherein the three-valued set comprises a truth value, a false value, and an uncertainty value.

26. (ORIGINAL) The apparatus of claim 15 wherein the logical product of each rule comprises a value between 0 and 1.

27. (ORIGINAL) The apparatus of claim 15 wherein the inference engine is configured to compute a refined location by:

selecting the rule with the highest logical product; and

using a consequent corresponding to the selected logical product as the refined location.

28. (ORIGINAL) The apparatus of claim 15 wherein the refined location comprises a list of candidate locations.

29. (PREVIOUSLY PRESENTED) A program storage device, readable by a computer, tangibly embodying at least one program of instructions executable by a computer to perform method steps for refining a location of a device, wherein the method steps comprise:

(a) determining an approximate location of a device;

(b) reading a rule base that comprises an ordered collection of rules;

(c) capturing an imprecise input, wherein the imprecise input is based on:

(i) a proximity to a particular user identified location;

(ii) a similarity between a current user's activity and a particular established activity profile; or

(iii) whether a current time is within a particular temporal range or temporal profile;;

(d) processing the imprecise input to determine a magnitude of participation of the input in the rules;

(e) applying the rules to the imprecise input based on the magnitude of participation to produce a logical product; and

(f) computing a refined location based on the logical product.

30. (PREVIOUSLY PRESENTED) The program storage device of claim 29, wherein the method steps further comprise:

gathering empirical data; and

progressively refining the rule base based on the empirical data.

31. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the rule base provides a default rule.

32. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the rule base is configured to reflect regional trends, social trends, or demographic trends.

33. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein one of the rules utilizes a logical product in an antecedent to determine a consequent.

34.-36. (CANCELED)

37. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the imprecise input is spatio-temporal.

38. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the magnitude of participation is within an interval [0,1].

39. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the method steps further define a three-valued set for each imprecise input, wherein the three-valued set comprises a truth value, a false value, and an uncertainty value.

40. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the logical product of each rule comprises a value between 0 and 1.

41. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the method steps compute the refined location by:

selecting the rule with the highest logical product; and

using a consequent corresponding to the selected logical product as the refined location.

42. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the refined location comprises a list of candidate locations.

43. (PREVIOUSLY PRESENTED) The method of claim 1 wherein the particular user identified location comprises a user identified favorite location.

44. (PREVIOUSLY PRESENTED) The method of claim 1 wherein the particular user identified location comprises a recently visited location of the current user.

45. (PREVIOUSLY PRESENTED) The apparatus of claim 15 wherein the particular user identified location comprises a user identified favorite location.

46. (PREVIOUSLY PRESENTED) The apparatus of claim 15 wherein the particular user identified location comprises a recently visited location of the current user.

47. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the particular user identified location comprises a user identified favorite location.

48. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein the particular user identified location comprises a recently visited location of the current user.

49. (PREVIOUSLY PRESENTED) The method of claim 1 wherein the refined location comprises a list of lists of candidate locations.

50. (PREVIOUSLY PRESENTED) The apparatus of claim 15 wherein comprises a list of lists of candidate locations.

51. (PREVIOUSLY PRESENTED) The program storage device of claim 29 wherein comprises a list of lists of candidate locations.